

Inter Linkage between Disability and Abuse/Mistreatment among Indian Elderly

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Abstract

The aim of the paper was to assess the relationship between disability conditions and elder abuse among the elderly population in India.

Cross-sectional data from the UNFPA's "Building Knowledge Base on Population Aging in India" (BKPAI- 2011) was used. We generated a 2+ disability variable by combining 2 and more than 2 disabilities. A multilevel logistic regression model was used to examine the association between disability and elder abuse.

The overall prevalence of elder abuse in the study population was 11.4 percent. The prevalence of disability increases the likelihood of elder abuse significantly. However, the size of the effect is larger in urban areas. The association between disability and abuse is stronger in urban areas. Elderly in rural and urban areas with 2+ disabilities is 1.85 (95% CI: 1.28, 2.67, $p < 0.001$), 3.49 (CI: 2.38, 5.13, $p < 0.000$) times more likely to experience elder abuse, respectively. Similarly, the size of the effect is larger among females. The association between disability and abuse is strong in the female population. Elderly in males and females with 2+ disability is 1.85 (95% CI: 1.23, 2.77, $p < 0.003$), 3.16 (CI: 2.22, 4.49, $p < 0.000$) times more likely to experience elder abuse, respectively. Furthermore, economic status and educational attainment have a protective role in determining elder abuse in India.

Key Words: Disability, elder abuse, Indian elderly, elderly management.

Introduction

Many of the countries have studied that abuse has targeted elders and its lead to demographic changes by an increase in the frequency of disability

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(Schiamberg & Gans, 2000). Now a day elder abuse is common among minority elders (Beach et al., 2010). Disability is expected to increase in the future among the elder due to the rising elder population (Murray & Lopez, 1997). Elder cannot be defined exactly because it does not have the same meaning in all societies. The United Nations uses the benchmark of 60 years of age or above to refer to 'elderly' (UNFPA, 2012). Here, the elderly is defined as the age of 60 years and above. The World Health Organization (2008) defines elder abuse as "a single, or repeated act, or lack of appropriate action, occurring within any relationship where there is an expectation of trust which causes harm or distress to an older person." Elderly abuse varies in form and severity. It includes physical, sexual, and verbal maltreatment as well as financial exploitation and neglect (Collins, 2006). Elder abuse sometimes called elder mistreatment or elder maltreatment (Stobo, Salmon & Cohn, 2002). A systematic review by Cooper et al. found in their research that one in vulnerable elders is at risk of abuse (Cooper, Selwood & Livingston, 2008). According to WHO, the primary health care and other social service sectors may not be well equipped to identify elder abuse, and the effort to solve it, elder abuse will continue to be overlooked (Dong, 2015). In India, the joint family system changing, and urbanism gradually changing the traditional role of caring parents or elders in the family, in a result, many of the elders feel abuse within the family (Grover, 2015 & Shankardass, 2008).

In India elderly person with multiple disabilities is higher in rural areas (12.7%) compare to urban areas (9.2%). Elder persons with multiple disabilities high in Rajasthan (21%), followed by Jammu and Kashmir (18.3%), Chhattisgarh (16.4%), Sikkim (16.3%), Himachal Pradesh (16%), Assam (15.9%), and Nagaland (15.5%). Prevalence of disability is female ratio high compare to males and females are more vulnerable to these disabilities (Oman et al., 1999) and they are more likely to be victims of sexual, mental, and financial abuse (Sethi et al., 2011). According to the Census 2011, 12% of the elder people had multiple disabilities. Other than disability ADL (Activities of daily living) and IADL (Instrumental activities of daily living) another challenge to elders. The Kerala Aging Survey found that one in 10 very older people need complete assistance due to limitations in physical mobility and they cannot do their daily activities without the help of others (Shankardass & Rajan, 2018).

Some of the risk factors linked with elder abuse, especially cognitive impairment and functional impairment (Dong, 2015), are additional demands increasing from caregiver to physical functional impairment elder (Johnson, 2000). Most of the studies have shown that those who are spending more time forgive more care to dementia elders get a higher

burden and it's associated with abuse (Cooper et al., 2010). Dementia significantly influence elder abuse by caregivers due to spending more time and a higher burden to caregivers (Cooper et al., 2009& Lee, &Kolomer, 2005)

Abuse is associated with quality of life and leading shortens survival (Shields, Hunsaker, & Hunsaker, 2003; Ahmad, & Lachs, 2002). Disabled persons are at real risk of being exposed to abuse and that abuse has consequences for health and is a factor contributing to disability. Also, functioning difficulties are increasing on at old age (World Health Organization, 2011). Now the tendency is disability as a human rights issue (Velema; Ebenso and Fuzikawa, 2008)The United Nations adoption of the United Nations Convention on the Rights of Persons with Disability (CRPD), the equalization of opportunities of a person with disabilities have incorporated the human rights of people with disabilities (Degener and Quinn 2000).

Disability is part of the human condition. Humans may get change temporarily or permanently impaired at some point in life, and those who have getting disabilities in their elder age face more difficult (Ferguson, 2001) because of the generally negative attitude and behavior towards disability person by society (Thornicroft, G., Rose, D., & Kassam, 2007). Disability is the umbrella term for impairments, activity limitations, and participation restrictions, referring to the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors)(Emerson et. al 2009). World health survey has conducted in 70 countries from2002 to 2004, its shows that older people had a higher prevalence of disability and estimated the prevalence of disability in lower-income countries among people aged 60 years and above, for instance, was 43.4% compared with 29.5% in higher-income countries(World Health Organization, 2011). Disability peoples having a greater risk of abuse/violence compare to without disability person Violence against the person with disabilities has 4-10 times greater than without disabilities (Marge, D. K. 2003) especially sexual abuse is high among with disabilities(Hague; Thiara and Magowan, 2007). The medical geriatric outpatient and psychogeriatric outpatient with caregiver reported abuse in India and its showing elder abuse directly correlated with disability and caregiver burden (Vaidyanathan, 2018).

Elder abuse increasing when a person gets disability or cognitive impairment (World Health Organization, 2011; Pillemer and Finkelhor, 1988). On other hand epically in late old age if they may be ill health, which leads to the disability with high support need(Pillemer and Finkelhor, 1988). Disability or cognitive persons are dependent, caretakers and they from family members or others (World Health

Organization, 2011; Pillemer and Finkelhor, 1988). Elders are abused in family and institutional settings. From the family spouses, family members, friends, caregivers, home care workers or professional or any visitors may chance to abuse and from the institutional setting hospital and nursing home health professional or professional many chances to abuse (World Health Organization, 2011).

The expectation of Caregiver functional capacity reducing when illness factors on disability and cognition with elder and it has been proposed to increase the risk of certain types of abuse (Yan & Tang, 2004).

Concerning the functional status of elder also mainly consider in abuse of an elder. Any ADL (Activities of Daily Living) impairment as well as the number of ADL impairments are associated with elder abuse or mistreatment (Lachs et al., 1997). Elder abuse has nearly two times the prevalence of higher impairments as measured by standardized instruments (Nagi, 1976; Rosow & Breslau, 1966).

Disability and functional health of elder association with the experience of abuse, in terms both of disability and functional health, are leading to increased vulnerability to abuse. In this, we explored this association. A number of studies have found that elderly person with a disability are at high risk of being victims of abuse because of their dependence (Lee, 2008; Giraldo-Rodríguez, Rosas-Carrasco & Mino-León, 2015)

Therefore in this study, we have analyzed the prevalence of elder abuse with disability and finding an association between disability and elder abuse in the selected state in India. Elders with one disability, elders with two disability and elders with more than two disabilities has analysis by multi-level regression analysis method. And disabilities difference ratio between the rural and urban elder population in India is also projected.

Materials and Methods

Data

Building a Knowledge base on Population Aging in India (BKPAI), the 2011 dataset will be used to fulfill the objectives of this study. BKPAI is an initiative to fill the knowledge gap on population aging in India. The information gathered in this survey includes socioeconomic status, work participation and benefits, income and asset holding, living arrangement patterns, and familial relations, social activities, abuse experience and nature of abuse, health status, utilization and financing of health care, and reach and awareness of social security scheme among the elderly.

It was covered seven states namely Himachal Pradesh, Kerala, Maharashtra, Odisha, Punjab, Tamil Nadu, and West Bengal- having a

higher percentage of the population in the age group 60 years and above compared to the national average. Then sample for each state was fixed at 1,280 elderly households. Households having at least one elderly member aged 60 years or above from the set of sample households and all the elderly in the selected households were interviewed. A total of 8,329 household interviews and 9,852 elderly interviews were conducted in rural and urban areas (BKPAI report, 2011).

Outcome variable

Elder abuse:

In the BKPAI survey, the respondents were asked questions regarding their experience of abuse since they were 60 years old and in the last month. The question was “In the time since you completed 60 years of age have you faced any type of abuse or violence or neglect or disrespect by any person?” the respondent answered ‘Yes and No’,

Main Predictors

Disability

In the BKPAI survey, information on the self-reported prevalence of disability was collected with the following question “Do you have any of the following difficulties? Data on a list of 6 disabilities were collected namely Vision, Hearing, Walking, Teeth (chewing), Speaking, Memory was collected. Data on a list of 6 different disabilities were collected. We included all disabilities and generated a variable of multi-disability by combining these 6 disabilities. Furthermore, we generated a categorical variable by taking the count of 6 disabilities as “no disability”, 1 disability, and 2+ disabilities.

Functionality

Data on a list of 6 ADL (activities of daily living) were collected namely bathing, dressing, toilet, mobility, continence, and feeding. We included all ADL and generated a variable of multi-ADL by combining these 6 ADL. Furthermore, we generated a categorical variable by taking the count of 6 ADL as “no ADL”, 1 ADL, and 2+ ADL. Likewise, we generated IADL (instrumental activities of daily living) by combining a list of 8 variables difficulty in using telephone, shopping, food preparation, housekeeping, laundry, transportation, medication, and finances. We generated a single variable of multi-IADL by combining these 8 IADL. Furthermore, we generated a categorical variable by taking the count of 8 IADL as “no IADL”, 1 IADL, and 2+ IADL.

Control variables

Age (60-69, 70-79 and 80+), years of schooling (0-4 years, 5-9 years and 10+ years), wealth quintile (poorest, poorer, middle, richer and richest), and marital status (currently married and widowed/separated/divorced), place of residence (Rural and Urban).

Statistical Analysis

Bivariate analysis was carried to understand the sample distribution and the prevalence of elder abuse by multi-disabilities. Logistic regression was used to estimate the association of socio-demographic and disability with elder abuse. The regression analysis was stratified by gender and place of the resident to better understand the difference in the association across male, female and rural, urban. All statistical analyses were performed using STATA 12 (StataCorp, LP, College Station, Texas).

Results

Figure 1 shows the prevalence of elder abuse about disability. There is a considerable increase in elder abuse among disabled elders compare to non-disability. The prevalence of elder abuse was 52.32 percent with disabilities and it is increasing 13.64 (hearing) to 52.32 (memory) with a different disability. The elder abuse prevalence is high in vision and memory disabled elder. Disability increases the dependence of elderly people, which increases their vulnerability to abuse, according to BKPAI data in Maharashtra 25.8% of an elder without any disability experienced abuse and 45.8% of elder with multiple disabilities experienced abuse so disability elder faced more abuse compared to the non-disability elder (Raju& Gupta, 2018).

Figure 2 shows the prevalence of abuse among elders with disabilities more than elders with ADL and IADL. The prevalence of elder abuse with ADL increasing 8.5 percent to 14.9 percent with 2+ADL. The prevalence of elder abuse with IADL increasing 9.0 percent to 11.1 percent with 2+IADL. And the prevalence of elder abuse with disability increasing 17.2 percent to 21.4 percent with 2+ Disability.

Table 1 describes the characteristics of the study population. The overall prevalence of elder abuse in the study population is 11.4. In this study, the percentage of older adults with no disability is 82.13 percent and at least 1 disability is 12.58 percent. The overall sample of women is higher than the total sample. About 60 percent of the study population is currently married. 2.83 percent study population is reported difficulties in any one activity of daily living and 4.79 percent study population is reported difficulties in more than 2 activities of daily living. 15.45 percent of the study population is reported using any one of the instruments for activities of daily living and 72.52 percent of the study population is reported more than 2 instruments are using for activities of daily living. Compare to the male population female population is high. 61.85 percent of the study population's age is 60 to 69 years old and 10.85 percent of the study population's age is more than 80 years old. About 64.43 percent of the study population studied only 0-4 years of education.

Table 2 shows the logistic regression results of disability and Functional health with elder abuse. This study shows an association between disabilities to abuse. There is a strong association between abuse and disability and a significant association between multi-disability and elder abuse. There is a significant positive relationship between multi-disabilities and elder abuse. Elder population with 2+ disabilities were 2.47 times more likely to experience elder abuse [CI=1.90, 3.21, $p < 0.000$]. The increase in the number of ADL and IADL increase the odds of elderly abuse. Furthermore, marital status showed a significant relationship. Currently married elderly had lower risks of elder abuse. Furthermore, an elderly individual with 10+ years of schooling had risks of elder abuse. The association between wealth quintile and elder abuse was highly significant. Elderly in the richest wealth quintile were 70 percent less likely to experience elder abuse [CI=0.22, 0.40, $p < 0.000$].

Table 3 shows the logistic regression results of elder abuse stratified by gender differences. There is a significant relationship between gender differences with disabilities and elder abuse. Elder population with 1 disability were 2.18 times more likely to experience elder abuse [CI=1.68, 2.84, $p < 0.000$] in females and same like 2+ disabilities were 3.16 times more likely to experience elder abuse [CI=2.22, 4.49, $p < 0.000$]. This table shows wealth quintile more or less same among both male and female elder with disability. The association between wealth quintile and elder abuse was highly significant and negative. Elderly in the richest wealth quintile 70 percent less likely to experience elder abuse [CI=0.19, 0.46, $p < 0.000$] among male and 72 percent [CI=0.19, 0.42, $p < 0.000$] among female. This table showing elder abuse prevalence more or less the same among male and female elders with disabilities from the state of Himachal Pradesh, Punjab, West Bengal, Maharashtra, Orissa, Kerala, and Tamil Nadu.

Table 4 shows the regression results stratified by place of residence. This study shows that strongly evident that the elderly in rural and urban areas had higher risks of elder abuse. Yet the association is stronger for urban areas. Older adults residing in rural areas with 2+ disabilities were 1.85 times more likely to experience elder abuse [CI=1.28, 2.67, $p < 0.001$]. On the other hand, the association is stronger for older adults residing from urban areas [OR=3.49, CI=2.38, 5.13, $p < 0.000$]. This table showing elder abuse prevalence more or least same among elders with disabilities from the state of Himachal Pradesh, West Bengal, Orissa, Kerala, Tamil Nadu in rural and urban areas but prevalence is increasing in a few states in urban areas that Punjab 1.29 [CI=0.79, 2.09, $P < 0.301$] Maharashtra 4.85 [CI=3.25, 7.24, $p < 0.000$]. And indicating state-wise elder abuse towards elder with disability prevalence differs by

influence other demography variables. Elderly in the richest wealth quintile were more than 60 percent less likely to experience elder abuse [CI=0.19, 0.47, $p < 0.000$] in rural and [CI=0.20, 0.53, $p < 0.000$] in urban.

Discussion

(Similarly, this study also shows that strongly evident that elderly in rural and urban areas had higher risks of elder abuse.)

Elders became vulnerable when they get disability and this disability giving many chances to encounter abuse from family members and society. Elder abuse in persons with a disability facing recurrent problems with severe consequences and it is directly affecting their health and welfare of life. The result of this study adds to an international investigation that has reported that a person with disabilities is at greater risk of being abused (Lee, 2008). A study performed with the Mexican elder with disabilities reported that elder persons with a disability are at greater risk of being victims of abuse (Giraldo-Rodríguez, Rosas-Carrasco & Mino-León, 2015). The current study revealed that elders with disabilities are strongly associated with abuse. According to India Human Development Survey data high prevalence of multi disability among the older population in India (Maikho Apoll & Goli, 2013). Similarly, this study also shows that multi-disability among elders. Physical dependency increases the risk factor of elder and it has one of the major causes of elderly abuse (Fulmer, 1990) and elder abuse directly correlated with disability (Vaidyanathan et al., 2018) similarly this study clearly shows a strong association between elder with disability and abuse. Elders with 2 or more disabilities are 2 times more likely to experience elder abuse.

One of the studies shows a higher prevalence of physical disability among females (Oman et al., 1999) similarly female ratio with disability high compare to males in this study. This study shows an association between abuse and disabilities (vision, hearing, walking, teeth issues, speaking) but a high prevalence of abuse is there with vision and memory difficulties in the elder. However, a high prevalence of abuse is there among the elder with disabilities compared to the elder without disabilities. In the United States violence against people with disabilities has been reported to be 4–10 times greater than that against people without disabilities (Marge, 2003). Elder abuse is high in Maharashtra compared to other states and abuse prevalence increasing 3 times compare to other states among elders with disabilities.

The aging process has epidemiological implications in this functional disability among elderly person is a major one (Audinarayana, 2016) ADL have an association with the experience of abuse. One of the studies also showing that in Maharashtra 68.3% of elders were experienced abuse

who were fully dependent on others for ADL (Raju & Gupta, 2018) similarly In this study showing that an increase in the number of ADL and IADL increase the odds of elderly abuse.

Gender is another frequent risk factor, in that females are more likely to be abuse as compared to their male counterparts. One of the expletory studies found that 93 percent of elder women experienced abuse. Women age and disability are not protected from sexual abuse, its make them more vulnerable and become victims in sexual abuse experience (Burgess, Ramsey-Klawnsnik & Gregorian, 2008) Another study also found that elder age and gender main factor of abuse among women disability (Kreigsmann & Bregman, 1985; Nosek, Howland & Hughes, 2001), This study found that gender playing role in elder abuse with disabilities. Elder abuse is strong among female elders with disabilities. Women with disabilities elder mostly depending others for economic (Nosek, Howland & Hughes, 2001) In this study wealth quintiles more or less the same among both male and female elders with disabilities.

This study indicates a significant positive relationship between multi-disability and elder abuse. One of the study results showing prevalence varies considerably by age and socio-economic factors emerged as one of the dominant predictors (Maikho Apollo Pou, & Goli, 2013) Similarly this study shows elderly with disabilities in the richest wealth quintile were more than 60 percent less likely to abuse.

More than 70+ and 80+ years old population highly encounter the abuse in urban compare to rural areas. Elder abuse prevalence with a disability is there both rural and urban but association strong in an urban area. Elder abuse prevalence increasing rural to urban in 1 to 3 times among 2+ disabilities. Elder abuse is high in Maharashtra compared to other states.

Strengths: To our knowledge, this is the first study to examine the role of multi-disability on elder abuse in India. Furthermore, we have used nationally representative data. Therefore, the results can be generalized at the national level. **Limitation of the study:** Elder abuse record is self-reported which may have some response bias. These reporting biases could also affect the result. Most of the elders from 80 years and more with disabilities faced abuse. This study did not compare abuse prevalence between an elder person with a disability and an elder person without disabilities.

Conclusion

Elder abuse towards elders with a disability is a very serious social issue because disabled persons are vulnerable in this situation if they faced abusing it will also make them more vulnerable. Elder abuse violates the social norms of respecting elders. Disability and multi-disability are

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strongly associated with elder abuse. It is suggesting that elder abuse necessary to improve recognition of abuse as a public health concern. Also, it is important to improve research to understand the factors involved and to develop strategies for the prevention of elder abuse. Furthermore government welfare protective measures and the program should support the elders with disabilities and immediate need is disabled elders should properly protect from abuse.

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Annex

Figure 1: Prevalence of elder abuse by disabilities, BKPAI

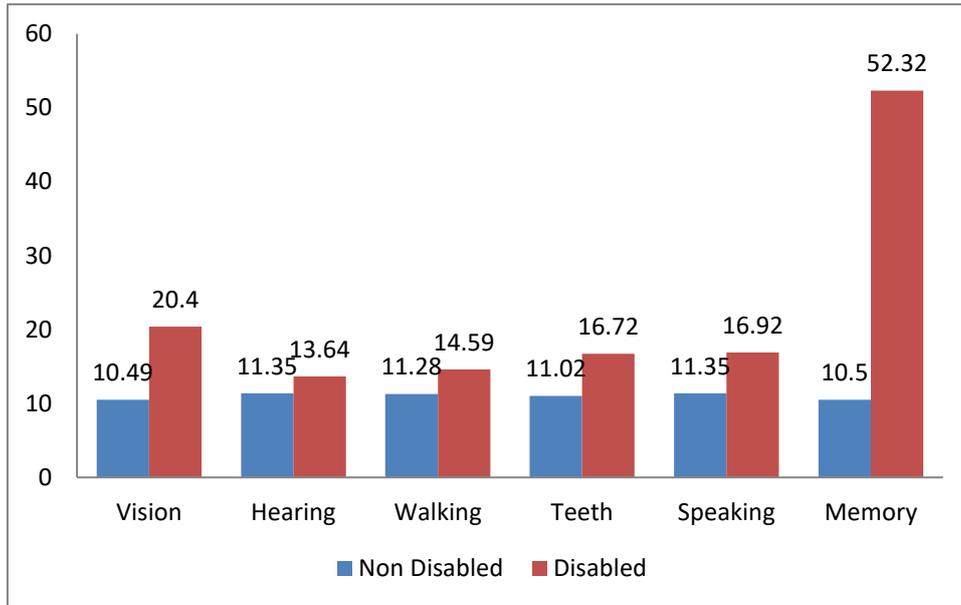


Figure 2: Prevalence of elder abuse by ADL, IADL and disabilities, BKPAI

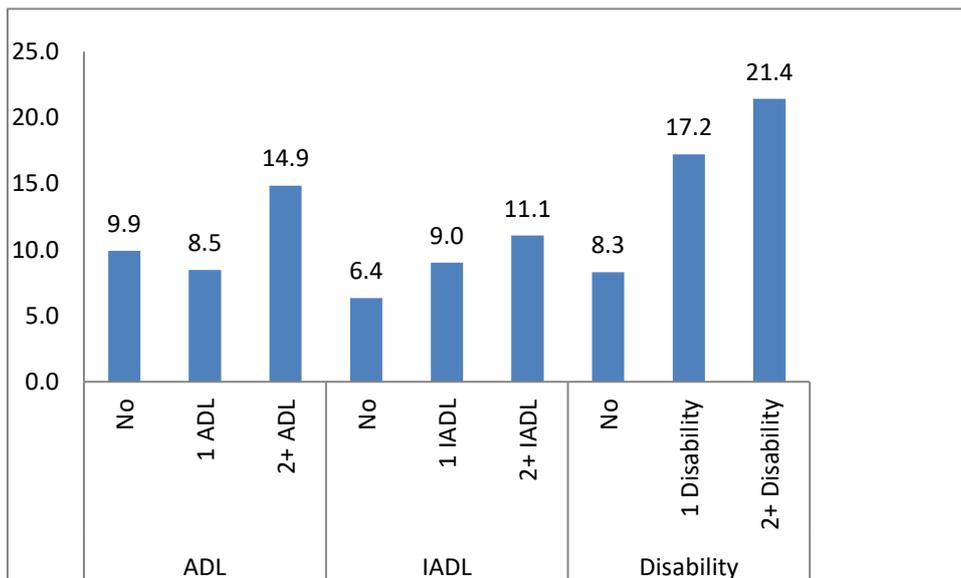


Table 1: Characteristics of the study population

Characteristics	Categories	Percent
Elder Abuse	No	88.6
	Yes	11.4
ADL	No	92.37
	1 ADL	2.83

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	2 + ADL	4.79
IADL	No IADL	12.03
	1 IADL	15.45
	2 + IADL	72.52
Multi-disability	No disability	82.13
	1 disability	12.58
	2 + disability	5.29
Age	60-69	61.85
	70-79	27.3
	80+	10.85
Sex	Male	47.33
	Female	52.67
Marital status	Married	60.34
	Others	39.66
Residence	Rural	73.57
	Urban	26.43
Caste	SC	26.37
	OBC	36.71
	Others	36.92
Religion	Hindu	78.25
	Muslim	8.34
	Sikh	9.15
	Others	4.26
Schooling	0-4 y	64.43
	5-9 y	20.46
	10+	15.1
Wealth quintile	1	24.25
	2	22.14
	3	20.46
	4	18.36
	5	14.79
State	Himachal Pradesh	15.03

	Punjab	13.92
	West Bengal	12.94
	Orissa	15.03
	Maharashtra	14.57
	Kerala	13.86
	Tamil Nadu	14.66

Table 2: Logistic regression results of disability and Functional health with elder abuse

Characteristics	AOR	P value	CI
ADL			
No ADL	Ref		
1 ADL	1.00	0.994	[0.61, 1.64]
2 + ADL	1.31	0.084	[0.96, 1.80]
IADL			
No IADL	Ref		
1 IADL	1.28	0.112	[0.94, 1.74]
2 + IADL	1.40	0.013	[1.07, 1.83]
Multi-disability			
No disability	Ref		
1 disability	1.93	<0.000	[1.59, 2.34]
2 + disability	2.47	<0.000	[1.90, 3.21]
Age			
60-69	Ref		
70-79	0.90	0.267	[0.75, 1.07]
80+	1.14	0.277	[0.89, 1.45]
Sex			
Male	Ref		
Female	0.93	0.424	[0.78, 1.10]
Marital status			
Married	Ref		
Others	1.24	0.011	[1.05, 1.48]
Residence			
Rural	Ref		

Inter Linkage between Disability

Urban	0.94	0.485	[0.79, 1.11]
Caste			
SC	Ref		
OBC	1.01	0.924	[0.81, 1.25]
Others	1.37	0.001	[1.13, 1.66]
Religion			
Hindu	Ref		
Muslim	0.95	0.770]	[0.69, 1.30]
Sikh	1.42	0.057	[0.98, 2.03]
Others	1.08	0.660]	[0.74, 1.58]
Schooling			
0-4 y	Ref		
5-9 y	0.89	0.312	[0.72, 1.10]
10+	0.64	0.003	[0.48, 0.86]
Wealth quintile			
1	Ref		
2	0.64	<0.000	[0.52, 0.80]
3	0.43	< 0.000	[0.34, 0.56]
4	0.35	< 0.000	[0.27, 0.46]
5	0.30	< 0.000	[0.22, 0.40]
State			
Himachal Pradesh	Ref		
Punjab	0.87	0.469	[0.62, 1.24]
West Bengal	0.52	<0.000	[0.38, 0.71]
Orissa	0.55	<0.000	[0.41, 0.74]
Maharashtra	3.71	< 0.000	[2.93, 4.69]
Kerala	0.41	< 0.000	[0.28, 0.61]
Tamil Nadu	0.15	< 0.000	[0.09, 0.24]

Table 3: Logistic regression results of elder abuse stratified by gender differences

	Male			Female		
Characteristics	AOR	P value	CI	AOR	P value	CI
ADL						
No ADL	Ref			Ref		
1 ADL	0.89	0.772	[0.41, 1.90]	1.06	0.840	[0.55, 2.05]
2 + ADL	1.60	0.052	[0.99, 2.59]	1.14	0.526	[0.75, 1.74]
IADL						
No IADL	Ref			Ref		
1 IADL	1.07	0.769	[0.67, 1.71]	1.4	0.0108	[0.92, 2.13]
2 + IADL	1.22	0.332	[0.81, 1.83]	1.47	0.033	[1.03, 2.10]
Multi-disability						
No disability	Ref			Ref		
1 disability	1.70	<0.000	[1.27, 2.28]	2.18	<0.000	[1.68, 2.84]
2 + disability	1.85	0.003	[1.23, 2.77]	3.16	<0.000	[2.22, 4.49]
Age						
60-69	Ref			Ref		
70-79	0.95	0.742	[0.74, 1.23]	0.84	0.176	[0.66, 1.07]
80+	1.56	0.012	[1.10, 2.21]	0.86	0.402	[0.61, 1.21]
Marital status						
Married	Ref			Ref		
Others	1.04	0.736	[0.79, 1.39]	1.34	0.009	[1.07, 1.68]
Caste						
SC	Ref			Ref		
OBC	1.17	0.324	[0.85, 1.60]	0.88	0.417	[0.65, 1.18]
Others	1.38	0.026	[1.03, 1.84]	1.39	0.011	[1.07, 1.80]
Religion						
Hindu	Ref			Ref		
Muslim	1.01	0.942	[0.63, 1.62]	0.89	0.606	[0.58, 1.36]
Sikh	1.74	0.043	[1.01, 2.97]	1.23	0.406	[0.75, 2.00]
Others	0.67	0.250]	[0.34, 1.31]	1.43	0.130]	[0.89, 2.29]
Schooling						
0-4 y	Ref			Ref		
5-9 y	1.01	0.937	[0.77, 1.32]	0.76	0.11	[0.54, 1.06]
10+	0.72	0.081	[0.51, 1.03]	0.43	0.005	[0.23, 0.77]
Wealth quintile						
1	Ref			Ref		
2	0.58	0.001	[0.42, 0.81]	0.67	0.006	[0.50, 0.89]
3	0.41	< 0.000	[0.29, 0.59]	0.42	<0.000	[0.31, 0.59]

Inter Linkage between Disability

4	0.35	< 0.000	[0.24, 0.51]	0.33	<0.000	[0.23, 0.46]
5	0.30]	< 0.000	[0.19, 0.46]	0.28	<0.000	[0.19, 0.42]
State						
Himachal Pradesh	Ref			Ref		
Punjab	0.81	0.433	[0.48, 1.36]	0.92	0.752	[0.58, 1.48]
West Bengal	0.59	0.020	[0.38, 0.92]	0.46	<0.000	[0.30, 0.71]
Orissa	0.53	0.004	[0.34, 0.81]	0.55	0.005	[0.36, 0.84]
Maharashtra	3.53	< 0.000	[2.52, 4.94]	3.78	<0.000	[2.72, 5.24]
Kerala	0.29	< 0.000	[0.15, 0.56]	0.53	0.012	[0.32, 0.87]
Tamil Nadu	0.13	< 0.000	[0.06, 0.27]	0.16	< 0.000	[0.89, 0.30]

Table 4: Logistic regression results of elder abuse stratified by place of residence

Characteristic s	Rural			Urban		
	AO R	P value	CI	AO R	P value	CI
ADL						
No ADL	Ref			Ref		
1 ADL	0.60]	0.204	[0.28, 1.30]	1.06	0.169	[0.81, 3.13]
2 + ADL	1.46)	0.057	[0.98, 2.16]	1.13	0.639	[0.67, 1.91]
IADL						
No IADL	Ref			Ref		
1 IADL	1.08	0.716	[0.70, 1.67]	1.47	0.086	[0.94, 2.28]
2 + IADL	1.38	0.083	[0.95, 1.99]	1.29	0.199	[0.87, 1.92]
Multi-disability						
No disability	Ref			Ref		
1 disability	1.56)	0.001	[1.21, 2.01]	2.63	< 0.000	[1.94, 3.57]
2 + disability	1.85	0.001	[1.28, 2.67]	3.49	< 0.000	[2.38, 5.13]
Age						
60-69	Ref			Ref		

70-79	0.80]	0.053	[0.64, 1.00]	1.12	0.434	[0.84, 1.49]
80+	1.08	0.609	[0.79, 1.47]	1.28	0.219	[0.86, 1.90]
Sex						
Male	Ref			Ref		
Female	0.92	0.466	[0.74, 1.14]	0.96	0.796	[0.72, 1.27]
Marital status						
Married	Ref			Ref		
Others	1.34	0.008	[1.08, 1.66]	1.11	0.460]	[0.83, 1.47]
Caste						
SC	Ref			Ref		
OBC	0.99	0.952	[0.75, 1.29]	1.08	0.668	[0.75, 1.55]
Others	1.36	0.011	[1.07, 1.73]	1.46	0.023	[1.05, 2.02]
Religion						
Hindu	Ref			Ref		
Muslim	0.92	0.755	[0.58, 1.48]	0.95	0.846	[0.61, 1.48]
Sikh	2.13	0.008	[1.22, 3.73]	1.11	0.682	[0.65, 1.91]
Others	1.28	0.354	[0.75, 2.17]	0.95	0.863	[0.54, 1.66]
Schooling						
0-4 y	Ref			Ref		
5-9 y	1.02	0.854	[0.77, 1.35]	0.75	0.084	[0.55, 1.03]
10+	0.75	0.214	[0.48, 1.17]	0.55	0.003	[0.37, 0.82]
Wealth quintile						
1	Ref			Ref		

Inter Linkage between Disability

2	0.63	<0.00 0	[0.49, 0.81]	0.69	0.116	[0.44, 1.09]
3	0.40]	< 0.000	[0.29, 0.56]	0.52	0.004	[0.34, 0.81]
4	0.34	< 0.000	[0.23, 0.48]	0.40]	<0.00 0	[0.26, 0.63]
5	0.30]	< 0.000	[0.19, 0.47]	0.33	<0.00 0	[0.20, 0.53]
State						
Himachal Pradesh	Ref			Ref		
Punjab	0.53	0.028	[0.30, 0.93]	1.29	0.301	[0.79, 2.09]
West Bengal	0.48	<0.00 0	[0.32, 0.72]	0.64	0.080]	[0.38, 1.05]
Orissa	0.53	0.001	[0.36, 0.77]	0.60]	0.051	[0.36, 1.00]
Maharashtra	3.23	< 0.000	[2.40, 4.36]	4.85	<0.00 0	[3.25, 7.24]
Kerala	0.31	< 0.000	[0.18, 0.53]	0.61	0.103	[0.33, 1.10]
Tamil Nadu	0.17	< 0.000	[0.10, 0.30]	0.10]	< 0.000	[0.39, 0.28]